

XV Compressors with Added Power Factor Correction

An appliance using a variable speed compressor must comply with EN 61000-3-2:2015 when released after June 30, 2017.

It must be equipped with a Power Factor Correction (PFC) function to be able to comply with the harmonics limits (see figure 2).

Secop will be introducing the XV attached electronic unit with PFC to the market to comply with the latest EU standards.



Fig. 1 XV compressor with electronic unit 105N5020/22.

Replacement and timing

The XV attached electronic units 105N5020 and 105N5022 must be replaced by 105N5320 when used in the EU.

Samples will be available from from April 2017 and orders from May 2017.

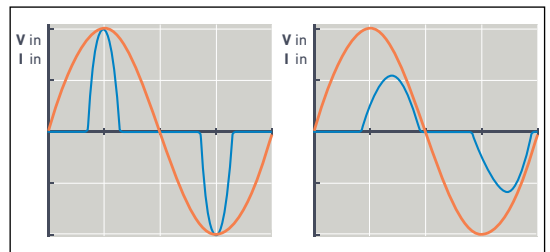


Fig. 2 On the left: voltage and current after power on [electronic unit 105N5020/22].
On the right: voltage and current after power on with added Power Factor Correction [electronic unit 105N5320].

Compatibility

The change is backward compatible, and Secop has managed to add the PFC function without significant change to COP values and energy consumption. The frequency input as well as the thermostat input used for speed control are still the same.

The PFC function normally requires more space, but Secop has managed to keep the size unchanged and designed a new housing with the same size as the existing 105N5020/22 housings (see figure 3 and 4).



Fig. 3 New 105N5320 electronic unit with cover.

Improvements

The Adaptive Energy Optimisation function (AEO) has been improved with a soft start-up after power on and a forbidden speed function that excludes a selectable speed range to prevent vibration noise in the refrigeration system. The selectable damping factor has been changed to 70% to offer robust speed regulation.

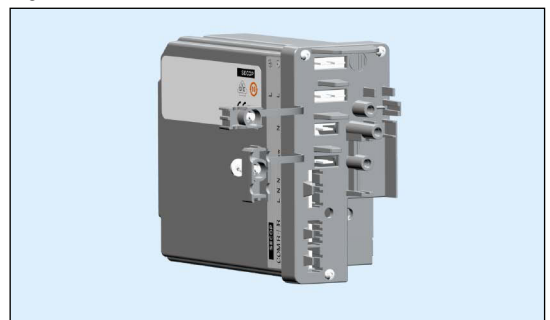


Fig. 4 New 105N5320 electronic unit without cover.

VDE approvals

The new controller has a VDE certificate, and appliances being updated need to update the VDE certificates accordingly.